



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,665	05/27/2005	Rudolf Linde	3081.117US01	9835
24113 7590 10/16/2007 PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100			EXAMINER WONG, EDNA	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 10/16/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/536,665

Applicant(s)

LINDE ET AL.

Examiner

Edna Wong

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 4/4/07, 7/11/07 and 9/20/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-16 is/are pending in the application.
- 4a) Of the above claim(s) 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

This is in response to the Amendments dated April 4, 2007 and July 11, 2007. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

***Response to Arguments***

**Election/Restrictions**

Applicant's election with traverse of Group I, claims **10-15**, in the reply filed on September 20, 2007 is acknowledged. The traversal is on the ground(s) that in the present case, the Examiner has clearly shown that a search and examination of all of claims 10-16 can be made without serious burden. This is not found persuasive because it was not until after the initial search and examination of all of claims 10-16 and Applicants' amendment to the product claim that it was determined that the search and examination of both the method and product claims were a serious burden on the Examiner because the inventions have a separate status in the art in view of their different classification, the inventions require a different field of search, and the inventions have a separate status in the art due to their recognized divergent subject matter.

The requirement is still deemed proper and is therefore made FINAL.

Accordingly, claim **16** is withdrawn from consideration as being directed to a non-elected invention.

Drawings

Figure 1 should have been designated by a legend such as --Prior Art-- because only that which is old is illustrated

The drawings were received on April 4, 2007. These drawings are acceptable.

Specification

I. The abstract of the disclosure has been objected to.

The objection of the abstract has been withdrawn in view of Applicants' amendment.

II. The disclosure has been objected to because of minor informalities.

The objection of the disclosure has been withdrawn in view of Applicants' amendment.

Claim Objections

I. Claim 17 has been objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

The rejection of claim 17 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim has been withdrawn in view of Applicants' amendment.

II. Claims **10, 14 and 21** have been objected to because of minor informalities.

The objection of claims 10, 14 and 21 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

I. Claims **10-21** have been rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for electrodeposition, does not reasonably provide enablement for electroless deposition. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The rejection of claims 10-21 under 35 U.S.C. 112, first paragraph, has been withdrawn in view of Applicants' amendment.

II. Claims **10-21** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 10-21 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 102

I. Claim **16** has been rejected under 35 U.S.C. 102(b) as being anticipated by **Mull**

(US Patent No. 5,415,761).

The rejection of claim 16 under 35 U.S.C. 102(b) as being anticipated by Mull has been withdrawn in view of Applicants' response to the restriction requirement.

**II.** Claim 16 has been rejected under 35 U.S.C. 102(b) as being anticipated by **Mull** (US Patent No. 6,319,385 B1).

The rejection of claim 16 under 35 U.S.C. 102(b) as being anticipated by Mull has been withdrawn in view of Applicants' response to the restriction requirement.

**III.** Claim 16 has been rejected under 35 U.S.C. 102(b) as being anticipated by **EP 1,205,582 ('582)** and **Horsthemke** (US Patent No. 6,837,981 B2).

The rejection of claim 16 under 35 U.S.C. 102(b) as being anticipated by EP 1,205,582 ('582) and Horsthemke has been withdrawn in view of Applicants' response to the restriction requirement.

**IV.** Claim 16 has been rejected under 35 U.S.C. 102(b) as being anticipated by **Wilmeth et al.** (US Patent No. 5,196,108).

The rejection of claim 16 under 35 U.S.C. 102(b) as being anticipated by Wilmeth et al. has been withdrawn in view of Applicants' response to the restriction requirement.

**V.** Claim 16 has been rejected under 35 U.S.C. 102(b) as being anticipated by **DE**

**44 32 512** ('512).

The rejection of claim 16 under 35 U.S.C. 102(b) as being anticipated by **DE 44 32 512** ('512) has been withdrawn in view of Applicants' response to the restriction requirement.

Claim Rejections - 35 USC § 102/103

I. Claims **10-15** have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **EP 1,205,582** ('582) and **Horsthemke** (US Patent No. 6,837,981 B2).

The rejection of claims 10-15 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1,205,582 ('582) and Horsthemke has been withdrawn in view of Applicants' remarks.

II. Claims **10-15** have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Wilmeth et al.** (US Patent No. 5,196,108).

The rejection of claims 10-15 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wilmeth et al. has been withdrawn in view of Applicants' remarks.

III. Claims **10-12 and 14-15** have been rejected under 35 U.S.C. 102(b) as

Art Unit: 1795

anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **DE 44 32 512** ('512).

The rejection of claims 10-12 and 14-15 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over DE 44 32 512 ('512) has been withdrawn in view of Applicants' remarks.

**IV.** Claims **17-21** have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **EP 1,205,582** ('582) and **Horsthemke** (US Patent No. 6,837,981 B2) as applied to claims 10-15 above.

The rejection of claims 17-21 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1,205,582 ('582) and Horsthemke as applied to claims 10-15 above has been withdrawn in view of Applicants' amendment. Claims 17-21 have been cancelled.

**V.** Claims **17-21** have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Wilmeth et al.** (US Patent No. 5,196,108) as applied to claims 10-15 above.

The rejection of claims 17-21 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wilmeth et al. as applied to claims 10-15 above has been withdrawn in view of Applicants' amendment. Claims 17-21 have been cancelled.



**VI.** Claims **17-19 and 21** have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **DE 44 32 512 ('512)** as applied to claims 10-12 and 14-15 above.

The rejection of claims 17-19 and 21 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over DE 44 32 512 ('512) as applied to claims 10-12 and 14-15 above has been withdrawn in view of Applicants' amendment. Claims 17-19 and 21 have been cancelled.

### ***Response to Amendment***

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

#### ***Method***

**I.** Claims **10-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **EP 1,205,582 ('582)** and **Horsthemke** (US Patent No. 6,837,981 B2) in combination with **Gardam** ("The Production of Machinable Cr Deposits", *J. of the Electrodepositors' Technical Soc.* (1945), Vol. 20, pp. 69-74).

*Horsthemke is the English equivalent of EP '582.*

Horsthemke teaches a method of producing a structured hard chrome layer,

comprising:

electrodepositing chromium from an electrolyte onto a workpiece (col. 2, lines 13-23), said electrolyte comprising:

(a) a Cr(VI) compound in an amount corresponding to 50 g/l to 600 g/l of chromic acid anhydride (= 100 g/L to 400 g/L of chromic acid) [col. 4, lines 43-45];

(b) 0.5 g/l to 10 g/l of sulphuric acid (= 1 g/L to 6 g/L of sulfuric acid) [col. 4, lines 45-47];

(c) 1 g/l to 20 g/l of aliphatic sulphonic acid, that comprises 1 to 6 carbon atoms (= over 0.1 g/L of a short-chain aliphatic sulfonic acid) [col. 4, lines 50-57]; and

(d) 10 g/l to 200 g/l of at least one compound forming a dense cathode film (= about 1 g/L up to the limit of solubility of an isopolyanion-forming metal) [col. 4, lines 58-61], said compound being selected from the group consisting of ammonium molybdate, alkali molybdate, alkaline earth molybdate, ammonium vanadate, alkali vanadate, alkaline earth vanadate, ammonium zirconate, alkali zirconate, and alkaline earth zirconate (col. 4, line 62 to col. 5, line 6).

The Cr(VI) compound is  $\text{CrO}_3$  (= chromic acid) [col. 4, lines 43-45].

The aliphatic sulphonic acid is methane sulphonic acid (col. 6, lines 3-4 and line 25).

The compound forming a dense cathode film is  $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24}\text{H}_2\text{O}$  (= ammonium

molybdate) [col. 4, lines 62-65].

The electrolyte contains substantially no fluorides (col. 5, line 65 to col. 6, line 5; and col. 6, lines 20-26).

The method comprises applying a current density of from 20 A/dm<sup>2</sup> to 200 A/dm<sup>2</sup> to the workpiece (= 20-50 A/dm<sup>2</sup>) [col. 5, lines 55-57].

The method of Horsthemke differs from the instant invention because Horsthemke does not disclose wherein the cathodic current yield in the production of the structured hard chrome layer is 12% or less, as recited in claim 10.

Horsthemke teaches that the cathode current efficiency is at least 15% (col. 5, lines 54-55).

Like Horsthemke, Gardam teaches electrodepositing Cr deposits. Gardam teaches that electrolyte conditions comprising:

- (a) 250 g/l CrO<sub>3</sub>;  
2.5 g/l H<sub>2</sub>SO<sub>4</sub>;  
temperature: 85°;  
c.d.: 20 A/dm<sup>2</sup>,

provides a low current efficiency of 6%;

- (b) 250 g/l CrO<sub>3</sub>;  
2.5 g/l H<sub>2</sub>SO<sub>4</sub>;  
25 g/l Fe;

temperature: 85°;

c.d.: 20 A/dm<sup>2</sup>,

provides a low current efficiency of 10%; and

(c) 250 g/l CrO<sub>3</sub>;

2.5 g/l H<sub>2</sub>SO<sub>4</sub>;

25 g/l Fe;

temperature: 85°;

c.d.: 40 A/dm<sup>2</sup>,

provide a low current efficiency of 12% (abstract).

These conditions give a Cr deposit that could be machined with a cutting tool (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the cathodic current yield described by Horsthemke with wherein the cathodic current yield in the production of the structured hard chrome layer is 12% or less because this condition would have gave a Cr deposit that would have been machinable with a cutting tool as taught by Gardam (abstract).

Furthermore, the cathodic current yield is a result-effective variable and one skilled in the art has the skill to calculate the cathodic current yield that would have determined the success of the desired reaction to occur, e.g., the machinability of the Cr deposit (MPEP § 2141.03 and § 2144.05(II)(B)).

Furthermore, the reason or motivation to modify the reference may often suggest

what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

II. Claims **10-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wilmeth et al.** (US Patent No. 5,196,108) in combination with **Gardam** ("The Production of Machinable Cr Deposits", *J. of the Electrodepositors' Technical Soc.* (1945), Vol. 20, pp. 69-74).

Wilmeth teaches a method of producing a structured hard chrome layer, comprising:

electrodepositing chromium from an electrolyte onto a workpiece (col. 1, lines 60-62), said electrolyte comprising:

(a) a Cr(VI) compound in an amount corresponding to 50 g/l to 600 g/l of chromic acid anhydride (= 250-300 g/L of chromic acid);

(b) 0.5 g/l to 10 g/l of sulphuric acid (= 2 to 4 g/L of sulfuric acid);

(c) 1 g/l to 20 g/l of aliphatic sulphonic acid, that comprises 1 to 6 carbon atoms (= 2-4 g/L of methane sulfonic acid); and

(d) 10 g/l to 200 g/l of at least one compound forming a dense cathode film, said compound being selected from the group consisting of ammonium

molybdate, alkali molybdate, alkaline earth molybdate, ammonium vanadate, alkali vanadate, alkaline earth vanadate, ammonium zirconate, alkali zirconate, and alkaline earth zirconate (= 25-50 g/L ammonium molybdate or other molybdenum salt producing an anion) [col. 5, lines 1-8].

The Cr(VI) compound is  $\text{CrO}_3$  (= chromic acid) [col. 5, line 5].

The aliphatic sulphonic acid is methane sulphonic acid (col. 5, line 3).

The compound forming a dense cathode film is  $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24}\text{H}_2\text{O}$  (= ammonium molybdate) [col. 5, lines 7-8].

The electrolyte contains substantially no fluorides (col. 5, lines 1-8).

The method comprises applying a current density of from  $20 \text{ A/dm}^2$  to  $200 \text{ A/dm}^2$  to the workpiece (=  $2-6 \text{ A/in}^2$ ).

The method of Wilmeth differs from the instant invention because Wilmeth does not disclose wherein the cathodic current yield in the production of the structured hard chrome layer is 12% or less, as recited in claim 10.

Wilmeth teaches that the cathode efficiency is about 18 to 20% (col. 5, line 11).

Like Wilmeth, Gardam teaches electrodepositing Cr deposits. Gardam teaches that electrolyte conditions comprising:

- (a) 250 g/l  $\text{CrO}_3$ ;
- 2.5 g/l  $\text{H}_2\text{SO}_4$ ;
- temperature:  $85^\circ$ ;

c.d.: 20 A/dm<sup>2</sup>,

provides a low current efficiency of 6%;

(b) 250 g/l CrO<sub>3</sub>;

2.5 g/l H<sub>2</sub>SO<sub>4</sub>;

25 g/l Fe;

temperature: 85°;

c.d.: 20 A/dm<sup>2</sup>,

provides a low current efficiency of 10%; and

(c) 250 g/l CrO<sub>3</sub>;

2.5 g/l H<sub>2</sub>SO<sub>4</sub>;

25 g/l Fe;

temperature: 85°;

c.d.: 40 A/dm<sup>2</sup>,

provide a low current efficiency of 12% (abstract).

These conditions give a Cr deposit that could be machined with a cutting tool (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the cathodic current yield described by Wilmeth with wherein the cathodic current yield in the production of the structured hard chrome layer is 12% or less because this condition would have gave a Cr deposit that that would have been machinable with a cutting tool as taught by Gardam (abstract).

Furthermore, the cathodic current yield is a result-effective variable and one skilled in the art has the skill to calculate the cathodic current yield that would have determined the success of the desired reaction to occur, e.g., the machinability of the Cr deposit (MPEP § 2141.03 and § 2144.05(II)(B)).

Furthermore, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

III. Claims 10-12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **DE 44 32 512** ('512) in combination with **Gardam** ("The Production of Machinable Cr Deposits", *J. of the Electrodepositors' Technical Soc.* (1945), Vol. 20, pp. 69-74).

DE '512 teaches a method of producing a structured hard chrome layer, comprising:

electrodepositing chromium from an electrolyte onto a workpiece, said electrolyte comprising:

(a) a Cr(VI) compound in an amount corresponding to 50 g/l to 600 g/l of chromic acid anhydride (= 350 g/L of CrO<sub>3</sub>);



(b) 0.5 g/l to 10 g/l of sulphuric acid (= 3.85 g/L of  $\text{H}_2\text{SO}_4$ );

(c) 1 g/l to 20 g/l of aliphatic sulphonic acid, that comprises 1 to 6 carbon atoms (= 2.5 g/L of methane sulfonic acid); and

(d) 10 g/l to 200 g/l of at least one compound forming a dense cathode film, said compound being selected from the group consisting of ammonium molybdate, alkali molybdate, alkaline earth molybdate, ammonium vanadate, alkali vanadate, alkaline earth vanadate, ammonium zirconate, alkali zirconate, and alkaline earth zirconate (= at least one of an element from Li, **Na**, Se, Te, Bi or **Zr** in an amount of 0.05 mMol to 2.5 Mol/l) [abstract] (col. 3, lines 21-28).

The Cr(VI) compound is  $\text{CrO}_3$  (col. 3, line 22).

The aliphatic sulphonic acid is methane sulphonic acid (col. 3, line 22).

The electrolyte contains substantially no fluorides (col. 3, lines 21-28).

The method comprises applying a current density of from 20  $\text{A/dm}^2$  to 200  $\text{A/dm}^2$  to the workpiece (= 50  $\text{A/dm}^2$ ) [col. 3, line 24].

The method of DE '512 differs from the instant invention because DE '512 does not disclose wherein the cathodic current yield in the production of the structured hard chrome layer is 12% or less, as recited in claim 10.

The method disclosed by DE '512 would have naturally had a cathodic current yield in the production of the structured hard chrome layer.

Like DE '512, Gardam teaches electrodepositing Cr deposits. Gardam teaches

that electrolyte conditions comprising:

- (a) 250 g/l  $\text{CrO}_3$ ;  
2.5 g/l  $\text{H}_2\text{SO}_4$ ;  
temperature:  $85^\circ$ ;  
c.d.:  $20 \text{ A/dm}^2$ ,

provides a low current efficiency of 6%;

- (b) 250 g/l  $\text{CrO}_3$ ;  
2.5 g/l  $\text{H}_2\text{SO}_4$ ;  
25 g/l Fe;  
temperature:  $85^\circ$ ;  
c.d.:  $20 \text{ A/dm}^2$ ,

provides a low current efficiency of 10%; and

- (c) 250 g/l  $\text{CrO}_3$ ;  
2.5 g/l  $\text{H}_2\text{SO}_4$ ;  
25 g/l Fe;  
temperature:  $85^\circ$ ;  
c.d.:  $40 \text{ A/dm}^2$ ,

provide a low current efficiency of 12% (abstract).

These conditions give a Cr deposit that could be machined with a cutting tool (abstract).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to have modified the cathodic current yield described by DE '512 wherein the cathodic current yield in the production of the structured hard chrome layer is 12% or less because this condition would have gave a Cr deposit that would have been machinable with a cutting tool as taught by Gardam (abstract).

Furthermore, the cathodic current yield is a result-effective variable and one skilled in the art has the skill to calculate the cathodic current yield that would have determined the success of the desired reaction to occur, e.g., the machinability of the Cr deposit (MPEP § 2141.03 and § 2144.05(II)(B)).

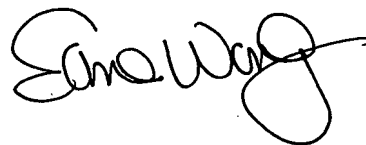
Furthermore, the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Edna Wong", with a stylized flourish at the end.

Edna Wong  
Primary Examiner  
Art Unit 1795

EW  
October 12, 2007